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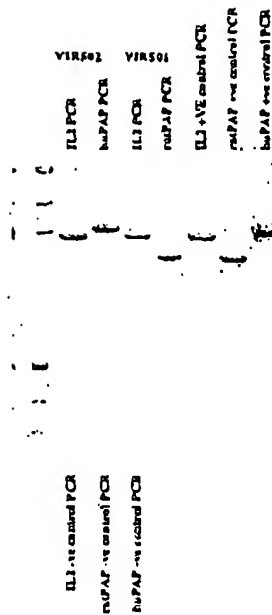


FIGURE 1

BEST AVAILABLE COPY

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VIR501 and VIR502 third round plaque picks
IL2-ELISA testing of undiluted culture medium from T25 infections

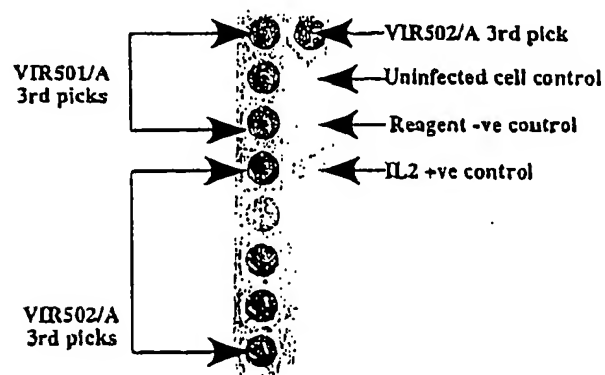


FIGURE 2

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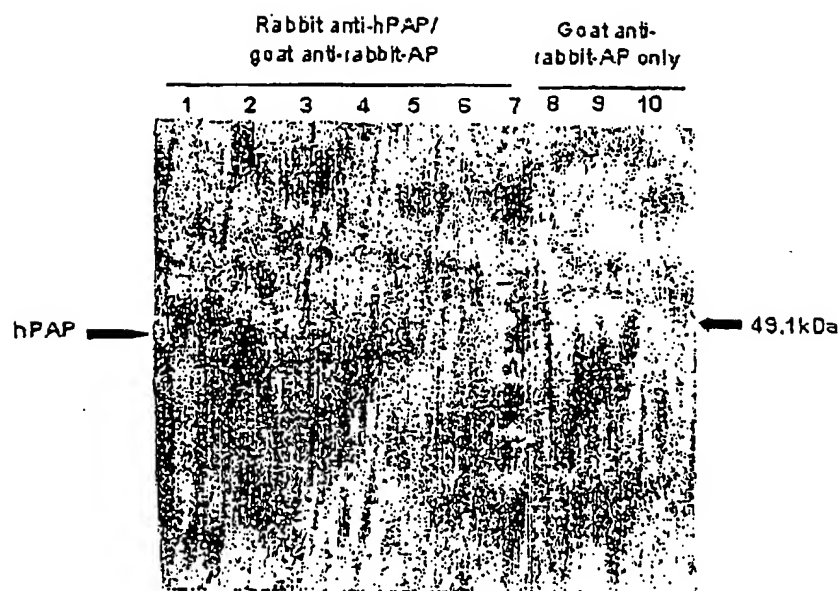


FIGURE 3

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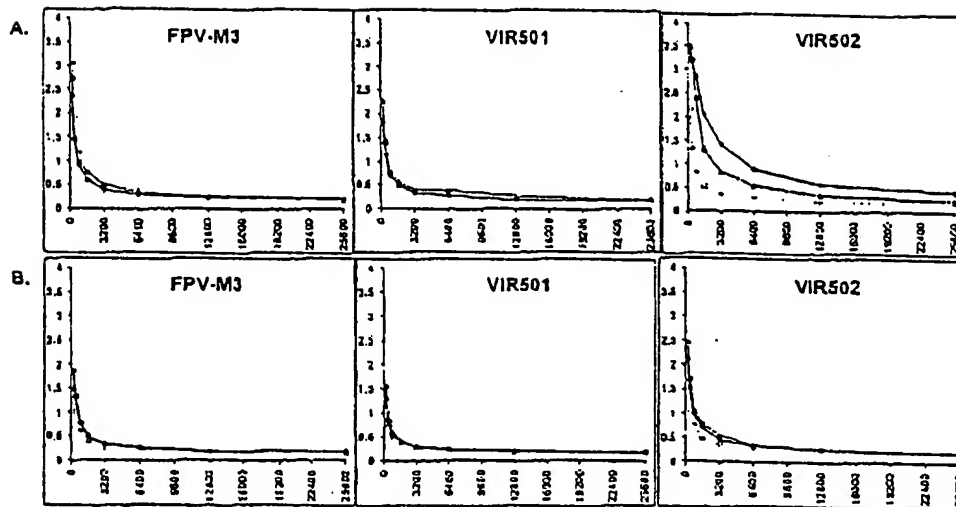


FIGURE 4

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Insertion site of VIR501 containing human IL2 and rat PAP sequences

The FPV ORFs are with reference to FPV genome ORFs - Genbank Ac No.: AF198100

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ATGGATAGAAATATCAATTTTAGTCTCTATTTATAGAACCTAGGTTTAAACACGAGTTTCTATTATCTCCTCAAAGGTATTTT
TACCTATCTTTATAGTTAAATCAGGACATAAATATCTTGGATCCAAATTTGTGCTCAAAGATAATAGAGGAGTTTCCATAAAA

TATATATTAGTTTTTGAAGTAATAGTAGCTTTGATTATATTGAATTTTTCTTTAAGGAAGAAATATTATATACATTTTTTCCG
ATATATAATCAAAAACCTTCATTATCATCGAACTAATAAATCTTAAAAAGAAATTCCTTCTTTATAATATATGTAAAAAAGGC
FPV132R ORF in bold →

TTAGCTAAGCCTTCTAAAAATTCATAAATAGTCTGCTGGATAGAACTATGTTAAATGTGAAGAAGATGGATCTTTGATGATT
AATCGATTCCGAAGATTTTAAAGTTATTTATCAGACGACCTATCTTGATACAAATTTACACTTCTTACCTAGAACTACTAA

TCGACACCTTCCGGTATCTATTCCGCCCTTGAGTTTAGATGGTTCACCGGTAAGGATTTCCGATTGTAGTTTGCTTTTATCGTCA
AGCTCTGGAAGGCCATAGATAAGCCGGAACCTCAAATCTACCAAGTGGCCATTCTAAAGGCTAACATCAAACGAAAATAGCAGT

ATAAATGGCGCATCTCATCAACATCTCCTACTCTATTTTTAAACAGACGATAAGGGATTTATTCTTATCTATCCGAAAAAAG
TATTTACCCCGTAGGAGTAGTTGTAGAGGAATGAGATAAAAAATGTCTGCTATTGCCCTAAAATAAGAATAGATAGGCTTTTTTC

TGATGATGAAGCTCTTGAAGACATAAATACTATTAAGAAATATATGGACTTTATTCTAAGCGTCTTATACGTTCTAAAGAGAA
ACTACTACTTCGAGAAGCTTCTGTATTATGATAATCTTTATATACCTGAAATAAGATTTCGAAGAATATGCAAGATTCTCTT

ACTAGAAAATATAGGATGTTCTTACGAGCCTATGAGTGAATCGTTTAAAGGCTCTTATTAAAGTAAAGGATGATGGTACTTTAGT
TGATCTTTTATATCTTACAAGAATGCTCGGATCTCAGTTAGCAAAATCCGAGAATAATTTCAATTCCTACTACCATGAATCA

AAAAGCATTTACCAAGCCATGTGTTAAATCCTCATTCCGATAGATAGTTTATAGTAGAGGTTATACTTCGGATTTTGCTATAAG
TTTTCGTAAATGGTTCCGTTACAATTTAGGAGTAAGGCTTTCTATCAAATCTATCTCCAATATGAAGCCTAAAACGATATTC

CGTAATAAGACTATCTAGTAAAGCAGTTATATACCTTCCGCAATACAAAATACATAAATCCAAACGAGAATATGTATATAAA
GCATTATTCTGATAGATCATTTTCGTCAATATATGAAGGGCGTTTATGTTTATGTATTTAGGTTTGCTCTTATACATATATT

CAACCTAATATCACTACTGAAGCGCAACTAGATCTTCCAAACCCACCGCTTTTTATAGTAAAGTTTTTCAACCCATAAAZAAZAA
GTTGGATTATAGTGAATGACTTCGCGTTGATCTAGAGGTTTGGGTGGGCGAAAAATATCATTCAAAAAGTGGGTTATTTATTAT

vaccinia p7.5 promoter in bold & italic →

ATACATAATTAATTTCTCTGTAAGGTAGAAAAATATATTTCTAATTTATTTGACGGTCTAGAACTAGTGgattccatGTACAGGAT
TATCTTATTAATTAAGAGCATTTTCATCTTTTATATAAGATTAAATAACGTGCCAGATCTTGATCACctaggTACATGCTCTA
> M Y R M

GCAACTCCTGTCTTGCAATGCACTAATTCITGCACTTGTACAAACAGTGCACTACTTCAAGTTGACAAAGAAAACAAAGAA
CGTTGAGGACAGAACGTAACGTGATTAAAGAACSTGAACAGTGTTTGTACGTGGATGAAGTTCAAGCTGTTTCTTTTGTCTT
> Q L L S C I A L I L A L V T N S A P T S S S T K K T K X
human IL2 protein coding sequence →

AACACAGCTACAACCTGGAGCATTTACTGCTGGATTTACAGATGATTTTGAATGGPATTAAATTAATTAACAAGAATCCCAAACCTCAC
TTGTGTCGATGTTGACCTCGTAAATGACGACCTAAATGTCTACTAAACCTTACCTTAATTTAATGTTCTTAGGGTTTGAGTG
> T Q L Q L E H L L L D L Q M I L N G I N N Y K N P K L T

CAGGATGCTCACATTTAAGTTTTTACATGCCCAAGAGGCCACAGAACTGAAACAGCTTCAGTGTCTAGAAGAAGAACTCAAACC
GTCCTACGAGTGTAAATTCAAAATGTACGGGTTCTTCCGGTGTCTTGACTTTGTGCAAGTCACAGATCTTCTTCTTGAGTTTGG
> R M L T F K F Y M P K K A T E L K Q L Q C L E E E L K P

TCTGGAGGAAGTGCTGAATTTAGCTCAAAGCAAAAACCTTCACTTAAGACCCAGGGACTTAAATCAGCAATATCAACGTAATAGT
AGACCTTCTTACGAGTTTAAATCGAGTTTCTGTTTGAAGTACACACTTATACGCTCTACTGTCGTTGGTAACATCTTAAAGACTTGTCTAC
> L E E V L N L A Q S K N F H L R P R D L I S N I N V I V

TCTGGAATAAGGGATCTGAAACAACATTCATGTGTGAATATGCAGATGAGACAGCAACCATTTGTAGAATTTCTGAACAGATG
AGACCTTGATTTCCCTAGACTTTGTTGTAAGTACACACTTATACGCTCTACTGTCGTTGGTAACATCTTAAAGACTTGTCTAC
> L E L K G S E T T F M C E Y A D E T A T I V E F L N R W
```

FIGURE 5

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PCV-AU2004.001129

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GATTACCTTTTGTCAAAGCATCATCTCAACACTAACTTGA**TTTTTGT**AGATCTGTGGACCATTTAGTATCCTAAATTTGAA
CTAATGGAAACAGTTTTCGTAGTAGAGTTGTGATTGA**AAAAACA**CTTAGACAGCTGGTAAATCATAGGATTTTAACTT
> I T F C Q S I I S T L T . FPV early/late
promoter

Early transcriptional
stop sequence (bold)

TTGTAATTATCGATAAAATGAGAGCTGTCCCTCTGCACCTCGTCGGGACAGCAAGCCTCACCCCTTGGCTTCTTGCTCCTGCT
AACATTAAGTATGCTATTTACTCTCGACAGGGAGACGTGGAGCAGCCCTGTCTGTCGGAGTGGGAACCGAAGAACGAGGACGA
> M R A V P L H L V G T A S L T L G F L L L L
Rat PAP protein coding sequence

ATCTCTCCGCTGGACCCAGGCCAAGCCAGGAGTTGAAGTTTGTGACATTGGTGTTCGGCATGGAGACCGAGGTCCCATCGA
TAGAGAGGCGGACCTGGGTCCGGTTCCTCAACTTCAAACACTGTAAACCAAGGCCGTACCTCTGGCTCCAGGGTAGCT
> S L R L D P G Q A K E L K F V T L V F R H G D R G P I E

GACCTTTCCTAATGACCCCATTAAGGAATCCTCGTGGCCACAAGGATTTGGCCAACTCACCAGTGGGGCATGGGACAGCACTA
CTGGAAAGGATTAAGTGGGTAATTCCTTAGGAGCAGCGGTGTCTTAAACCGGTTGAGTGGTTCACCCCTACCCCTGTCTGAT
> T F P N D P I K E S S W P Q G F G Q L T K W G M G Q H Y

CGAACTCGGAAGTTATATAAGGAGAAGATACGGGAGATTCTTGAACAACCTCTATAAACATGACCAAGGTTTATATCCGAAGCAC
GCTTGAGCCTTCAATATATTCCTCTTCTATGCCCTCTAAGAACTTGTGAGGATATTTGTACTGGTCCAAATATAGGCTTCGTG
> E L G S Y I R R R Y G R F L N N S Y K H D Q V Y I R S T

AGATGTTGACAGGACTCTGATGAGCGCTATGACAAACCTCGCAGCCCTGTTTCCCTGAGGGGATCAGCATCTGGAATCCAG
TCTACAACCTGTCTGAGACTACTCGCGATACTGTTGGAGCGTCGGGACAAAGGGGACTCCCCCTAGTCGTAGACCTTAGGGTC
> D V D R T L M S A N T N L A A L F P P E G I S I W N P R

ACTGCTCTGGCAGCCCATCCAGTGCACACCGTGTCTCTCTGAGGATCGGTTGCTATACCTGCCTTTCAGGGACTGTCTCTG
TGACGAGACCGTCGGGTAGGGTCACGTGTGGCAGAGAGAGACTCTAGCCAACGATATGGACGGAAAGTCCCTGCAGGAGC
> L L W Q P I F V H T V S L S E D R L L Y L F F R D C P R

CTTCAAGAACTCAAGAGTGAGACTTTAAATCTGAGGAGTTCCTGAAGAGGCTTCAACCATATAAAGCTTCATAGACACCTT
GAAAGTTCTTGAGTTCTCACTCTGAAAATTTAGACTCCTCAAGGACTTCTCCGAAGTTGGTATATTTTGAAGTATCTGTGGAA
> F Q E L K S E T L X S E E F L K R L Q P Y K S F I D T L

GCCATCGCTGTCTGGGATTCGAGGACCAGGATCTTTTGAATCTGGAGTAGGCTTACGACCCCTTATATTGCGAGAGTGTTC
CGTAAAGTGAAGCCCTAGCTCCTGGTCTTAGAAAACTTTAGACTCATCCGAATGCTGGGAAATATAACGCTCTCACAGT
> P S L S G F E D Q D L F E I W S R L Y D P L Y C E S V H

CAATTTACCTTCCGCACCTGGGCCACAGAGGACGCCATGACTAAGTTGAAGGAGTTGTCAGAATTATCTCTGTTATCTCTTTA
GTTAAAGTGAAGGCGTGGACCCGGTGTCTCTGCGGTACTGATTCAACTTCTCAACAGTCTTAATAGAGACAATAGAGAAAT
> N F T F R T W A T E D A M T K L K E L S E L S L L S L Y

TGGAATTCACAAGCAGAAAGAGAAATCTAGACTCCAGGGGGCGTCTGGTCAATGAAATTCTCAAGAACATGAAGCTTGCAC
ACCTTAAGTGTCTGCTCTTCTCTTTAGATCTGAGGTCCCCCGCAGGACCACTTACTTTAAGAGTTCTTGTAATTCGAACGTTG
> G I H K Q K E K S R L Q G G V L V N E I L K N M K L A T

TCAACACAGAAGGCCAGGAAGTTGATCATGTATTCTGCATATGACACTACTGTGAGTGGCCTGCAGATGGCGCTAGAGCTTTA
AGTTGGTGTCTTCCGCTCCTTCAACTAGTACATAAGACGTATACTGTGATGACACTCACCGGACGTCTACCGCGATCTCGAAAT
> Q P Q K A R K L I M Y S A Y D T T V S G L Q M A L E L Y

TAATGGACTTCTACCTCCCTACGCTTCTCTGCCACATAATGAATTTGTACCAGGATAATGGGGGACCTTCGTGGAGATGTACTA
ATTACCTGAAGATGGAGGGATGCGAAGGACGCTGTATTACCTTAACATGGTCTATTACCCCCCTGGAAGCACCTCTACATGAT
> N G L L P P Y A S C H I M E L Y Q D N G G T F V E M Y Y

CCGGAATGAGACCCAGAACGAGCCCTACCCACTCAGGCTGCCGGGCTGTACCCACAGCTGCCCTCTGGAGAAGTTTGCAGAGCT
GGCCTTACTCTGGGTCTTGGTCTGGGATGGGTGAGTGGCAGCGCCCGACATGGGTGTGACGGGAGACCTCTCAACGCTCTCGA
> R N E T Q N E P Y P L T L P G C T H S C P L E K F A E L

FIGURE 5 cont.

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ACTGGACCCCGTGATCCCCCAGGACTGGGCCACAGAGTGATGGGCACAAGCAACCACCPAGCGTCGCTGTAAATTCTCTGTCG
TGACCTGGGGCACTAGGGGGTCCTGACCCGGTGTCTCACATACCCGTGTTCTGTTGGTGGTTTCGCAGCGACATTAAAAAGACAG
> L O P V I P Q D W A T E C M G T S N H Q A S L .

ACCCATGGTTGTTAAAAAGGAATTGAAAGAAAATATTTTATATCGTAATAAATAAATATGCATGAAGGACATCAGGAGTCTTT
TGGGTACCAACAATTTTCTTAACTTTCTTTTATAAATATAGCATTATTTAATTTATACGTACTTCCTGTAGTCCTCAGAAA
FPV134R ORF in bold

TAAAGAACTTGAATGACAAAACCTTATATCTTCTTCAATGAAGTACTAGGTGAAGAAGACTATAACAAAGAGTTAGAAAATTC
ATTTCTTGAACCTTACTGTTTTGGAATATACAAGAAGTACTTGATCATCCACTTCTTCTGATATTGTTTCTCAATCTTTTAAG

TAATACTAAGTTTCAAGGACAGGGCCAGCTTAAGCTGTTATTAGGAGAACTTTATTTCTTAAATACATTAAATCAAGAATAAAAC
ATTATGATTCAAAGTTCCTGTCCCGGTCGAATTCGACAATAATCTCTTGAATAAAGAATTTATGTAATTAGTCTTATTTTG

GTTATGTTCAGATACAGTTATCGTGTATATAGGGTCAGCACCAGGAAGCCATATAAAATTTTATATATCATTATATGGATGA
CAATACAAGTCTATGTCAATAGCACATATATCCAGTCGTGGTCTTCGGTATATTTAAAAAATATAGTAATATACCTACT

Early transcriptional
stop sequence for rat PAF

TCTTAAATAGATTTAAATGGATATTAAATAGATGGTAGAGATCATGATCGATCTCTAGAAAGTCTTAAATGTGTCTATAAT
AGAAATTTATCTAAATTTTACCTATAATTATCTACCATCTCTAGTACTAGCTAGAGATCTTTCAGAAATTTTACACAGATATTA

ACATAGGTTTGTAGATGAACAATACTTGTTTAAGCTACGTAATATGATTAGGAAAAACCATAAAATGCTACTGATATCAGATAT
TGTATCCAAACATCTACTTGTATCAACAAATTCGATGCATTATCTAATCCTTTTGGTATTTTAAACATGACTATAGTCTATA

TAGATCGCTAAGAGGAAAAGAACCTACTAGCGAGGACCTATACACGATTACGCGTTGCAGAAATCAAATGGTAAGCATTCTTAA
ATCTAGCGATTCTCCTTTCTTGGATGATCGCTCTGGATAATGTGCTAATGCGCAACGTCTTAGTTTACCATTTCGTAAGAATT

ACCAATAGCATCGAGCCTGAAATGCAGATGTCCGTTTCCGGATCAGTGGATAAGAGACTTTTACATTCTTGTGGAGATGAGTT
TGGTTATCGTAGCTCGGACTTTACCTCTACAGGCAAGGCCTAGTCACCTATTCTCTGAAATGTAAGGAACACCTCTACTCAA

T
A

FIGURE 5 cont.

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Insertion site of VIR502 containing human IL2 and human PAP sequences

The FPV ORFs are with reference to FPV genome ORFs - Genbank Ac No.: AF198100

ATGGATAGAAATATCAATTTTAGTCCTGTATTATAGAACCTAGGTTTAAACACGAGTTTCTATTATCTCCTCAAACGTA
TACCTATCTTTATAGTTAAATCAGGACATAAATATCTTGGATCCAAATTTGTGCTCAAAGATAATAGAGGAGTTCCAT
FPV132R ORF in bold →

TTTTTATATATTAGTTTTTGAAGTAATAGTAGCTTTGATTATATTGAATTTTTTCTTTAAGGAAGAAATATTATATACAT
AAAAATATATAATCAAAACTTCATTATCATCGAACTAATATACTTAAAAAGAAATTCCTTCTTTATATATATGTA

TTTTTCCGTTAGCTAACCTTCTAAAAATTCAATAAATAGTCTGCTGGATAGAACTATGTTAAATGTGAAGAGATGGA
AAAAAGGCAATCGATTTCGAAGATTTTAAAGTTATTATCAGACGACCTATCTTGATACAATTTTACACTTCTTCTACCT

TCTTTGATGATTTCCAGACCTTCCGGTATCTATTCCGCCCTTGAGTTTAGATGGTTACCCGGTAAGGATTTCCGATTGTAC
AGAACTACTAAGCTCTGGAAGCCATAGATAAGCCGCAACTCAAATCTACCAAGTGGCCATTCTAAAGGCTAACATC

TTTGCTTTTATCGTCAATAAATGGCGCATCTCATCAACATCTCCTTACTCTATTTTAAACAGACGATAACGGATTTTAT
AAACGAAATAGCAGTTATTTACCGCTAGGAGTAGTTGTAGAGGAATGAGATAAAATTTGTCTGCTATTGCTTAAATA

TCTTATCTATCCGAAAAAGTGATGATGAAGCTCTTGAAGACATAAATCTATTAAAGAAATATATGGACTTTATTTCTAAG
AGAATAGATAGGCTTTTTTCACTACTACTTCGAGAACTTCTGTATTATGATAATTTCTTATATACCTGAAATAAGATTCT

CGTTCTTATACGTTCTAAAGAGAACTAGAAATATAGGATGTTCTTACGAGCCTATGAGTGAATCGTTTAAAGGCTCTTA
GCAAGAATATGCAAGATTCTCTTTGATCTTTTATATCTTACAAGAATGCTCGGATACTCACTTAGCAAAATTCGAGAAAT

TTAAAGTAAAGGATGATGGTACTTTAGTAAAGCATTACCAAGCCATTGTTAAATCCTCATTCCGAAAAGATAGTTTAA
AATTCATTTCTTACTACCATGAATCATTTTCGTAAATGTTTCGGTAACAATTTAGGAGTAAGGCTTTTCTATCAAAAT

GATAGAGGTTATACTTCGGATTTTGCTATAAGCGTAATAAGACTATCTAGTAAAGCAGTTATATACTTCCCGCAAATAC
CTATCTCCAATATGAAGCCTAAACGATATTTCGCATTATCTGTAGATCATTTTCGTCAATATATGAAGGGCGTTTATG

AAATACATAAATCCAAACGAGATATGTATATAAACCAACCTAATATCACTACTGAAGCGCACTAGATCTTCCAAACCC
TTTTATGTATTTAGGTTTGCTCTTATACATATATTTGTTGATTATAGTGATGACTTCGCGTTGATCTAGAAGGTTTGGG

ACCGGCTTTTATAGTAAGTTTTCACCCATAAATAAATAAATTAATTAATTTCTCGTAAAGTAGAAAAATATATTC
TGGGCGAAAAATATCATTCAAAAGTGGGTATTATTTATTTATGTTATTAATTAAGAGCATTTTCATCTTTATATAAG
vaccinia p7.5 promoter in bold & italic →

TAATTTATTGCACGGTCTAGAACTAGTGgattccATGTACAGGATGCAACTCCTGTCTTGCAATTGCACTAATTCTTGCACT
ATTAATAACGTGCCAGATCTTGATCACctaggTACATGTCTACGTTGAGGACAGAACGTAACGTGATTAAAGACGTGA
> N Y R M Q L L S C I A L I L A L
Human IL2 protein coding sequence →

TGTCACAAACAGTGCACCTACTTCAAGTTCGACAAAGAAAACAAAGAAACACAGCTACAACTGGAGCATTTACTGCTGG
ACAGTCTTTGTACGCTGGATGAAGTTCAAGCTGTTTCTTTTGTCTTTTGTGTCGATGTTGACCTCGTAAATGACGACC
> V T N S A P T S S S T K K T K K T Q L Q L E H L L L

ATTTACAGATGATTTTGAATGGAATTAATAATTACAAGAATCCCAAACCTACCAGGATGCTCACATTTAAGTTTACATG
TAAATGTCTACTAAACTTACCTTAATTAATGTTCTTAGGGTTTGAAGTGGTCTACGAGTGTAATTTCAAATGTAC
> D L Q M I L N G I N N Y K N P K L T R M L T F K F Y M

CCCAAGAAAGGCCACAGAAGTGAACAGCTTCAGTGTCTAGAAGAAGAACTCAAACCTCTGGAGGAAGTGTGAATTTAGC
GGGTCTCTCCGGTGTCTTGACTTTGTGGAAGTCAAGATCTTCTTCTTGAGTTTGGAGACCTCTTCAAGACTTAAATCG
> P K K A T E L K Q L Q C L E E E L K P L E E V L N L A

TCAAAGCAAAACTTTCACTTAAGACCCAGGGACTTAATCAGCAATATCAACGTAATAGTTCTGGAACCTAAAGGGATCTG
AGTTTCGTTTTTGAAGTGAATTTCTGGTCCCTGAATAGTCTGTTATAGTTGCAATTAACAAGACCTTGATTTCCCTAGAC
> Q S K N F H L R P R D L I S N I N V I V L E L K G S

FIGURE 6

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AAACAACATTCATGTGTGAATATGCAGATGAGACAGCAACCATTTGTAGPATTCTTGAACAGATGGATTACCTTTTGTCAA
TTTGTGTGAACACACACTTATAGCTCTACTCTGTCTGTTGGTAACATCTTAAAGACTTGTCTACCTAATGGAAACAGTT
> E T T F M C E Y A D E T A T I V E F L N R W I T F C Q

AGCATCATCTCAACACTAACTTGATTTTTGTGACTGTGcgaccatttagtatccataaaattgaattgtaattatcg
TCGTAGTAGAGTTGTGATTGAACAAAAACACTAGACagctggtaaatcataggattttaaacttaacatttaagc
> S I I S T L I
Early transcriptional stop sequence in bold
FPV early late promoter →
in bold & italic

ataataaATGAGAGCTGCACCCCTCCTCTGGCCAGGGCAGCAAGCCTTAGCCTTGGCTTCTTGTCTTGCTTTTCTCT
tattattTACTCTCGACGTGGGGAGGAGGACCGGTCCCGTCTGCGAATCGGAACCGAAGCAAAAGACGAAAAAAGA
> M R A A P L L L A R A A S L S L G F L F L L F F
Human PAP protein coding sequence →

GGCTAGACCGAAGTGTACTAGCCAAGGAGTTGAAGTTTGTGACTTTGGTGTTCGGCATGGAGACCGAAGTCCCATTSAC
CCGATCTGGCTTCACATGATCGGTTCCTCAACTTCAACACTGAAACACAAAGCCGTACCTCTGGCTTCAGGGTAACTG
> W L D R S V L A K E L K F V T L V F R H G D R S P I D

ACCTTTCCCACTGACCCCATAAAGGAATCCTCATGGCCACAAGGATTGGCCAACTCACCAGCTGGGCATGGAGCAGCA
TGGAAAGGGTGACTGGGGTATTTCCTTAGGAGTACCGGTGTTCTTAAACCGGTTGAGTGGGTGACCCGTACCTCGTCTG
> T F P T D P I K E S S W P Q G F G Q L T Q L G M E Q H

TTATGAACTTGGAGAGTATATAAGAAAGAGATATAGAAAATTCTTGAATGAGTCTTATAAACATGAACAGGTTTATATTC
AATACTTGAACCTCTCATATATTCTTCTCTATATCTTTAAGAAGTACTCAGGATATTGTACTTGICCAATATAG
> Y E L G E Y I R K R Y R K F L N E S Y K H E Q V Y I

GAAGCACAGACGTTGACCGGACTTTGATGAGTGCTATGACAAACCTGGCAGCCCTGTTTCCCCGAAAGGTGTGAGCATC
CTTCGTGTCTGCAACTGGCCTGAACTACTCAGGATAGTGTGGAGCCGTGGGACAAAGGGGGTCTTCCACAGTCTGAG
> R S T D V D R T L M S A M T N L A A L F P P E G V S I

TGGAACTCTATCTACTCTGGCAGCCCATCCGGTGACACAGTTCTCTTTCTGAAGATCAGTTGCTATACCTGCCTTT
ACCTTAGGATAGGATGAGACCGTGGGTAGGGCCACGTGTGTCAAGGAGAAAGACTTCTAGTCAACGATATGGACGGAAA
> W N P I L L W Q P I P V H T V P L S E D Q L L Y L P F

CAGGAACCTGCCCTCGTTTCAAGAAGTGTGAGAGTGAGACTTTGAATCAGAGGAATTCAGAGAGGCTGCACCCCTTATA
GTCCTTGACGGGAGCAAAAGTCTTGAAGTCTCACTCTGAACTTTAGTCTCTTAAAGGTCTTCTCCGACGTGGGAATAT
> R N C P R F Q E L E S E T L K S E E F Q K R L H P Y

AGGATTTTATAGCTACCTTGGGAAAACCTTTCAGGATTACATGGCCAGGACCTTTTGGAAATTTGGAGTAAAGTCTACGAC
TCCTAAATATCGATGGAACCCCTTTGAAAGTCTAATGTACCGGTCTTGGAAAACCTTAAACCTCATTTTCAGATGCTG
> K D F I A T L G K L S G L H G Q D L F G I W S K V Y D

CCTTTATATTGTGAGAGTGTTCACAATTTCACTTTACCTCTCTGGCCACTGAGGACACCATGACTAAGTTGAGAGAATT
GGAAATATAACACTCTCACAAGTGTAAAGTGAATGGGAGSACCGGTGACTCCTGTGGTACTGATTCAACTCTCTTAA
> P L Y C E S V H N F T L P S W A T E D T M T K L R E L

GTCAGAAATGTCCTCTCTGTCCTCTATGGAATTCACAAGCAGAAAGAGAAATCTAGGCTCCAAGGGGGTGTCTGGTCA
CACTCTTAAACAGGGAGGACAGGGAGATACCTTAAAGTGTTCGTCTTTCTCTTAGATCCGAGGTTCCCCACAGGACAGT
> S E L S L L S L Y G I H K Q K E K S R L Q G G V L V

ATGAAATCCTCAATCACATGAAGAGAGCAACTCAGATACCAAGCTACAAAAAATCATGTATTCTGCGCATGACACT
TACTTTAGGAGTTAGTGTACTTCTCTCGTTGAGTCTATGGTTGATGTTTGAATAGTACATAAGACGGTACTGTGA
> N E I L N H M K R A T Q I P S Y K K L I M Y S A H D T

ACTGTGAGTGGCTACAGATGGCGTAGATGTTTACAACGGACTCCTTCTCTCCCTATGCTTCTTGCCACTTGACGGAATT
TGACACTCACCGGATGTCTACCGGATCTACAAATGTTGCTGAGGAAGSAGGGATACGAAGACGGTGAAGTGCCTTAA
> T V S G L Q M A L D V Y N G L L P P Y A S C H L T E L
```

FIGURE 6 cont.

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GTACTTTGAGAAGGGGGAGTACTTTGTGGAGATGTACTATCGGAATGAGACGCGAGCAGCGATCCCTCATGCTAC
CATGAAACTCTTCCCCCATGAAACACCTCTACATGATAGCCTTACTCTGCGTCGTGCTCGGCATAGGGGAGTACGATG
> Y F E K G E Y F V E M Y Y R N E T Q H E P Y P L N L

CTGGCTSCAGCCCTAGCTGTCTCTGAGAGGTTTGCTGAGCTGGTTGGCCCTGTGATCCCTCAAGACTGGTCCACGGAG
GACCGACGTGCGGATCGACAGGAGACCTCTCCAAACGACTCGACCAACCGGGACACTAGGGAGTTCTGACCCAGGTGCCCTC
> P G C S P S C P L E R F A E L V G P V I P Q D W S T E

TGTATGACCACAAACAGCCATCAAGSTACTGAGGACAGTACAGATTAATTTTCTGTCGACCCATGGTTGTTAAAAGGA
ACATACTGGTGTGTTGTCGGTAGTCCATGACTCCTGTCTATGTTAAATAAGACAGCTGGGTACCACATTTTTCCT
> C M T T N S H Q G T E D S T D

ATTGAAAGAAATATTTTATATCGTAATAATTAAATATGCATGAAGGACATCAGGAGTCTTTAAAGAACTTCAAATGA
TAACTTTCTTTTATAAAATATAGCATTATTTAATTTATACGTACTTCTGTAGTCTCAGAAAATTTCTTGAACCTTACT
FPV134 ORF in bold →

AAAACTTTATATGTTCTTCAATGAAGTACTAGGTGAAGAGACTATAACAAAGAGTTAGAAAATTTCTAATACTAGTTT
GTTTGGAAATATACAGAAGTTACTTGATCATCCACTTCTCTGATATTGTTTCTCAATCTTTAAGATTATGATTCAA

CAAGGACAGGGCCAGCTTAAGCTGTTATTAGGAGAAGTTTATTTCTTAAATACATTAAATCAAGAATAAAACGTTATGTT
GTTCTGTCCTCGGTGGAATTCGACAAATAATCCTCTTGAAATAAAGAATTTATGTAATTAGTTCTTATTTTGCAATACAAG

AGATACAGTTATCGTGTATATAGGGTCAGCACCAGGAGCCATATAAATTTTATATATCATTATATGGATGATCTTA
TCTATGTCAATAGCACATATATCCAGTCGTGGTCCTTCGGTATATTTAAAAATATAGTAATATACCTACTAGAAT
Early transcriptional
stop sequence in bold
for human PAP sequence

AAATAGATTTAAATGGATATTAATAGATGGTAGAGATCATGATCGATCTCTAGAAAAGTCTTAAAAATGTGTCTATAATA
TTTATCTAAATTTTACCTATAATTATCTACCATCTCTAGTACTAGCTAGAGATCTTTCAGAAATTTTACACAGATATTAT

CATAGGTTTGTAGATGAACAATACTTGTTTAAGCTACGTAATATGATTAGCAAAAACCATAAAAATTGTACTGATATCAGA
GTATCCAAACATCTACTTGTATGAACAAATTCGATGCATTATACTAATCCTTTTTGGTATTTTAAACATGACTATAGTCT

TATTAGATCGCTAAGAGGAAAAGAACCTACTAGCGAGGACCTATTACACGATTACGGGTTGCAGAATCAAATGGTAAGCA
ATAATCTAGCGATTCTCCTTTTCTGGATGATCGCTCCTGGATAATGTGCTAATGCGCAACGCTTTAGTTTACCATTGCT

TTCTTAAACCAATAGCATCGAGCCTGAAATGGAGATGTCCGTTCCGGATCAGTGGATAAGAGACTTTTACATTCCTTGT
AAGAATTTGGTTATCGTAGCTCGGACTTTACCTCTACAGGCAAAGGCCTAGTCACCTATTCTCTGAAAATGTAAGGAACA

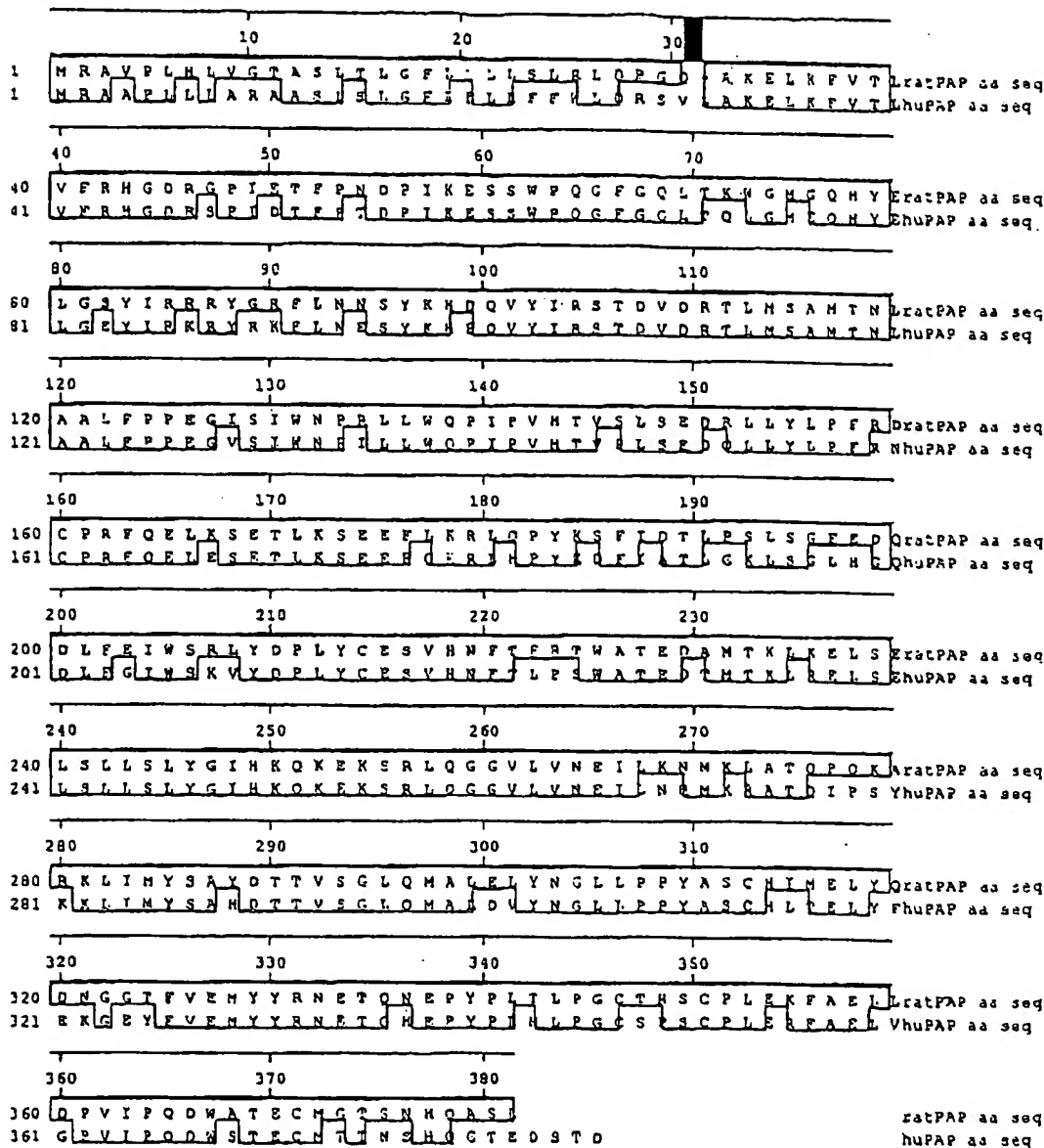
GGAGATGAGTTT
CCTCTACTCAA

FIGURE 6 cont.

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Amino acid sequence alignment of rat PAP from VIR50i with human PAP from VIR502

Boxed: Identical amino acid



Decoration 'Decoration #1': Box residues that match ratPAP aa seq exactly.

FIGURE 7

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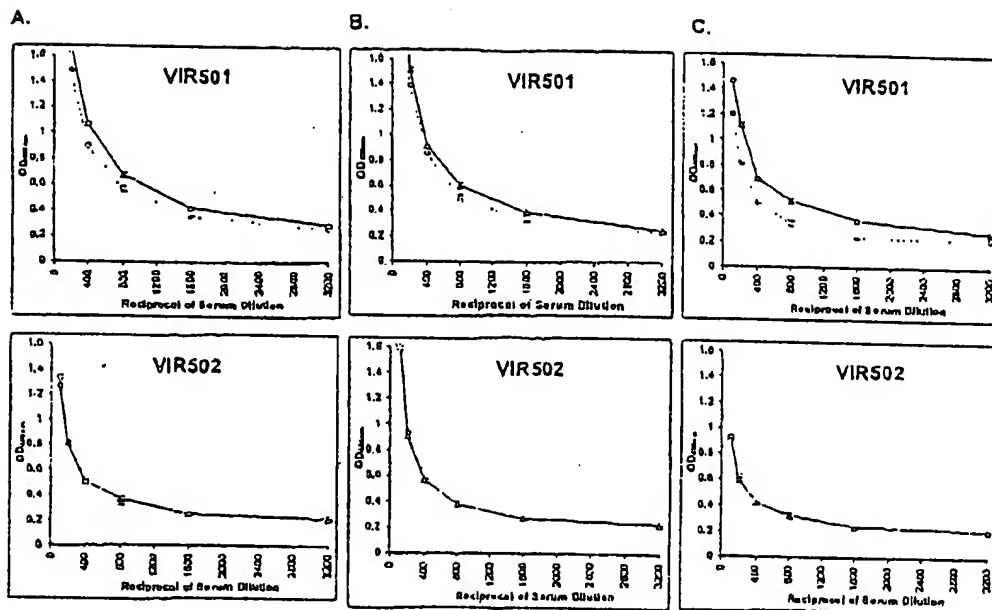


FIGURE 8

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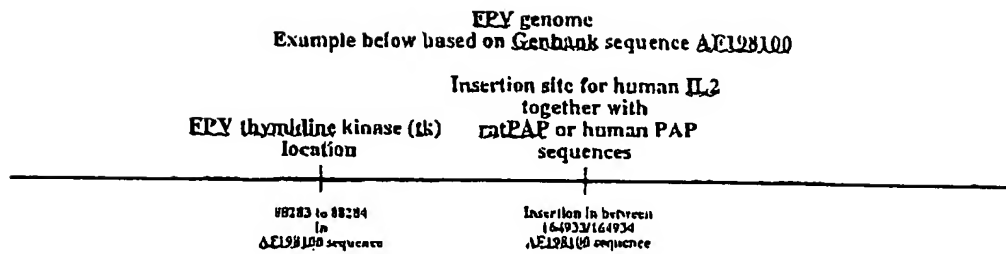
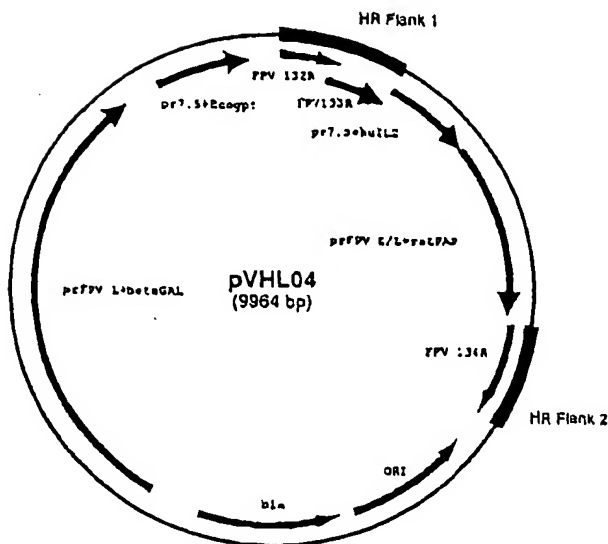


FIGURE 9

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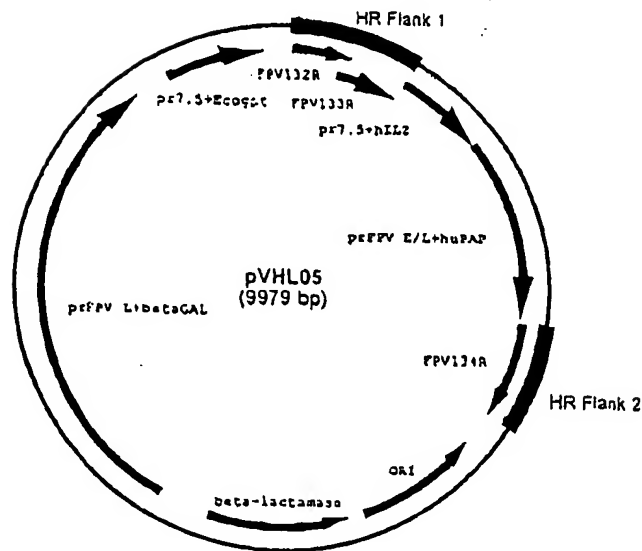


pVHL04 was constructed by cloning the following into a bacterial plasmid vector:

1. prFPV L+betaGAL: beta-Galactosidase protein coding sequence operatively linked to a fowlpox virus late promoter
2. pr7.5+Ecogpt: E coli xanthine-guanine phosphoribosyl transferase protein coding sequence operatively linked to a vaccinia virus p7.5 promoter
3. Fowlpox Virus nucleotide sequence spanning ORFs 132 and 133 - these two ORFs overlap each other. This sequence forms the homologous recombination flank 1.
4. pr7.5+huIL2: human IL2 protein coding sequence operatively linked to a vaccinia virus p7.5 promoter.
5. prFPV E/L+rat PAP: rat prostatic acid phosphatase (PAP) protein coding sequence operatively linked to a fowlpox virus early late promoter.
6. Fowlpox Virus nucleotide sequence spanning ORFs 134 - this sequence forms the homologous recombination flank 2.

FIGURE 10

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pVHL05 was constructed by cloning the following into a bacterial plasmid vector:

7. prFPV L+betaGAL: beta-Galactosidase protein coding sequence operatively linked to a fowlpox virus late promoter
8. pr7.5+Ecogpt: E coli xanthine-guanine phosphoribosyl transferase protein coding sequence operatively linked to a vaccinia virus p7.5 promoter
9. Fowlpox Virus nucleotide sequence spanning ORFs 132 and 133 - these two ORFs overlap each other. This sequence forms the homologous recombination flank 1.
10. pr7.5+huIL2: human IL2 protein coding sequence operatively linked to a vaccinia virus p7.5 promoter.
11. prFPV E/L+huPAP: human prostatic acid phosphatase (PAP) protein coding sequence operatively linked to a fowlpox virus early late promoter.
12. Fowlpox Virus nucleotide sequence spanning ORFs 134 - this sequence forms the homologous recombination flank 2.

FIGURE 11

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